

ENVIRONMENTAL PROTECTION AGENCY
REGION III
INTERIM CONSTRUCTION INSPECTION REPORT

Name of Facility Hamilton Township Sanitary Sewerage Report Number 5
System Grant Number C-420916-01
Location R. D. #4, Chambersburg, PA 17201 Grant Amount \$4,841,020.00

Section I. General

1. Applicant Hamilton Township Municipal Authority
2. Brief Project Description Construct gravity pipelines, force mains, and five pumping stations to service approximately 1,500 EDU in Hamilton Township.

3. Date Visited 20 March 1980 Date Prior Visit 5 December 1979

4. Status of Grant Schedule: Date Construction Start 11 January 1979

Original Completion Date 3 July 1980

Revised Completion Date 11 July 1980 (Eight Day Time Extension as a result of Change Orders.)

Scheduled percent this date 76% Thru 29 February 1980

Actual percent this date 83% Thru 29 February 1980

Number of EPA Payment Requests submitted and total amount (11) \$3,954,600.00

Number of payments received by applicant and total amount (10) \$3,401,400.00

Actual percent complete this date by EPA payments Received 70%

5. This inspection performed by James A. Smith, Jr., P.E., U.S. Army, Corps of Engrs., Philadelphia District, Chambersburg Area Office, Telephone (717) 264-8012

6. Consultant Arrowood, Inc., Post Office Box 433, Chambersburg, PA 17201

7. Persons Contacted:

<u>Name</u>	<u>Title</u>	<u>Employer</u>	<u>Telephone</u>
Mathew McAllen,	Chief Inspector,	Arrowood, Inc.	(717) 264-4540
W. L. Arrowood,	President,	Arrowood, Inc.	(717) 263-8794
Laurie Greene,	Accountant,	Arrowood, Inc.	(717) 263-8794
Sam Garnes,	Estimator,	Arrowood, Inc.	(717) 263-8794
George Gerelis,	Manager,	Hamilton Township Municipal Authority	(717) 264-2946
Al Dalberto,	Project Engineer,	PennDER, Harrisburg	(717) 787-9965

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Section II. Administration/Management

1. Daily log of construction, who keeps, is it acceptable?

Each inspector keeps a daily log, Resident Engineer maintains a master diary
(hard bound books). Resident Engineer and inspector's logs were accurate and
up-to-date.

2. Method of recording construction deficiencies and method of recording correction thereof. (Show complete sequences.)

Deficiencies are generally recorded on the quantity sheets and inspector's
field books. Corrections were reported as being recorded in the field books,
also. Mr. McAllen reported that Contractors' response to date has been good.

3. How is work approved prior to payment? By whom? (for unit price items)

Mr. Arrowood reports that the Resident Engineer makes his own payment estimate,
compares this to the contractor's estimate and finalizes this with con-
tractor. Mr. Arrowood then submits estimate to Authority for payment.
Resident Engineer and Inspectors measure quantities for unit price items on
a daily basis.

4. How is received equipment inspected and approved prior to payment?

Equipment and materials are checked by inspectors prior to installation and
payment. Stored materials (Contract 5 only) paid at 90% of invoiced value.
No stored materials payment made for Contracts 1 thru 4.

5. Change Orders. How many - how estimated and approved prior to commencing work?

Ten* change orders have been approved by the Authority. Change orders for
unit price items are estimated by the Consultant, recommended to the
Authority by Mr. Arrowood and approved by the Authority. Non-unit price
items are estimated by Consultant and cost negotiated with contractor.

* Two change orders being processed by A/E.

6. Change Order Log

Grantee: Hamilton Township Municipal Auth.

Gravity Lines and Force Main

Grant No.: C-420916-01

Change Order No.	Description	Date Initiated	Initiated By	EPA Approval Required	Approved by Grantee	Date of Approval Grantee	Approval Amount	New Contract Total	Time Extension Calendar Days	New Completion Date	Contract Documents Adjusted	New Eligible Items Total	New Ineligible Items Total
1	Temp. conn. to Ex. Boro. System near Int. Hood & Commerce	12/2/78	Auth	Yes	Yes	5/8/79	\$42,881	\$5,125,645	+3	7/06/80	Yes	\$4,668,411.00	\$457,233.00
2	Alignment Change at Int. N. Franklin St. ext. & Commerce St.	2/28/79	Auth	Yes	Yes	5/8/79	\$385.00	\$5,125,259.00	--	7/06/80	Yes	\$4,668,026.00	\$457,233.00
3	Alignment Change along LR 28006 & Property Owners Kaiser and Shetter	4/11/79	Auth	Yes	Yes	5/8/79	\$2,142	\$5,123,117	--	7/06/80	Yes	\$4,665,884.00	\$457,233.00
8	Alignment Change to Follow street in Carl Flohr Development	4/20/79	Auth	Yes	Yes	5/8/79	\$1,558	\$5,121,559	--	7/06/80	Yes	\$4,664,326.00	\$457,233.00
4	Alignment Change to miss storm sewer along Route 30	5/4/79	Auth	Yes	Yes	7/11/79	\$460	\$5,122,019	+1	7/07/80	Yes	\$4,665,081.00	\$456,938.00
5	Sewer Extension for New Dwelling off of T-532	9/24/79	Auth	Yes	Yes	10/10/79	\$3,570	\$5,125,589	+1	7/08/80	*	\$4,667,966.00	\$457,583.00
6	Sewer Extension on Hilltop Drive	10/5/79	Auth	Yes	Yes	10/10/79	\$1,792	\$5,127,382	+1	7/09/80	*	\$4,671,743.00	\$455,639.00
7	Sewer Extension for New Dwelling on James Street	10/8/79	Auth	Yes	Yes	10/10/79	\$8,802	\$5,136,184	+1	7/10/80	*	\$4,680,039.00	\$456,145.00
* No	- Awaiting approval by Farmers Home Administration.												

6. Change Order Log

Grantee: Hamilton Township Municipal Auth

Gravity Lines and Force Mains - Pump Stations

Grant No.: C-420916-01

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7. Construction inspection

Supervising Inspector & Employer Dennis Black

Inspectors & Employers Lisa Hoover (Clerk), K. Shives, T. Crouse,

K. Breighner, M. McAllen (T. Nickles - paid by Authority).

Describe chain of command and efficiency of operation.

Inspectors report to Mr. Black, Resident Engineer, who reports to Mr. Arrowood,

President. Mr. Arrowood in turn reports to the Authority.

8. Treatment plant operation during construction. New N/A Addition
If addition or modification, obtain past and present operational records.
Include copies of permit data or complete the below:

Permit No. Not Applicable

Permit Parameters	Prior to Construction (Date _____)		During Construction (Date _____)	
	<u>Infl</u>	<u>Effl</u>	<u>Infl</u>	<u>Effl</u>

NOT APPLICABLE

9. Plant or Unit Process Bypassing During Construction Not Applicable

10. Milestone Dates:* (Repeat below for additional contracts.)

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* J - Target
B - Actual

Section III. Interferences to job (Strikes, equipment, deliveries, etc., and proposed resolution).

All pump stations delivered. No other interferences reported.

Section IV. Permit Program

1. Was a Section 404 or Section 404/10 permit issued? Yes _____ No X
2. If yes, does construction appear to be in compliance with the plans and conditions of the permit?
3. If no, is any work being performed or proposed in any waterway, wetlands, etc.? Yes X (give details) No _____

Four small stream crossings are in contract and covered by Nationwide Blanket Permit. Construction has been completed on all crossings.

Section V. Quality of Construction

1. Test Requirements: (Repeat below for additional contracts.)			
Contract: 1 thru 4 - Gravity and Force Mains			
	Spec. Requirements	Test Result	Final Resolution
Soil Compaction	90% of max. dry density by AASHTO Method T-99	No tests since last Interim:	
	Maximum of 50 tests for Contracts 1 thru 4, plus alternates.	Previous Tests Avg. 92.9% Compaction	Passed.
Concrete Cylinder	Class A (Structural) 3,000 psi min	No test run since last interim.	---
	Class B (Non-Struc.) 2,500 psi min		
Equipment	Certifications for pipe and pre-cast manholes on file at field office.		
Sewer Line Grades	Branches and centerline of manholes checked by Contractor	No errors have been encountered by follow-up surveys on inverts.	
	Cut sheets submitted to and checked by Inspectors, who also	Alignment checked prior to backfill. check grades daily.	
Gravity Lines ---	Low Pressure Air Test -----	2 failed to date. Logs are up-to-date & accurate.	Passed
Pressure Lines ---	Hydrostatic water test @ 150 psi for two hours. -----	None tested to date.	----
Manholes -----	Infiltration/Exfiltration Tests	Spot checked for infiltration.	
	as needed.	Repaired where needed.	Passed.

Contract: 5 - Pumping Stations			
	Spec. Requirement	Test Result	Final Resolution
Soil Compaction	None, except for subgrade replaced with fill, which is compacted to 90% (AASHTO T-99).	None encountered to date.	
Concrete Cylinder	Class A (Structural) 3,000 psi min.	PS#1, See comments in Section VII PS#3, 7 day breaks 2,600 psi.	Pending Pending
Equipment	Operational Tests at factory and after installation of pumps and generators.	None to date.	
Sewer Line Grades	Checked by Inspectors	No problems to date.	
Gravity Lines - Pressure Lines - Manholes -	Low Pressure Air Test Two hr. Hydrostatic 150 psi Exfiltration/Infiltration as needed.	Test None to date.	

Contract:			
	Spec Requirement	Test Result	Final Resolution
Soil Compaction			
Concrete Cylinder			
Equipment			
Sewer Line Grades			
Other			

2. Appearance of Construction (By Contract)

Concrete work Concrete strength and placement in manholes to date is satisfactory. Risers are properly supported. Pipe encasements, where required, are satisfactory. Contract No. 5 - Problems encountered with cold weather placements on PS#1. Corrective action since taken is satisfactory. See Comments in Section VII.

Earth work Satisfactory. Trenches are properly braced by trench boxes and/or shoring. Backfill is tamped by hand wackers. Compaction test results to date are satisfactory. Pressure-jet water compaction is used on Township roads, and no settlement problems have resulted to date.

Electrical work None to date (pump stations).

Form and Frame work None to date. Pre-packaged pump stations will be utilized on Contract 5. Only foundation slab will require formwork. Of the slabs placed to date, results are satisfactory except for slab on PS# 1, which is awaiting final test results.

Masonry work Only work to date has been on metering station along Commerce Street. Block is properly set and joints raked and accurate. Finish satisfactory. Pre-fabricated metal buildings will be used at pump stations in lieu of masonry block structures.

Mechanical work None to date (pump stations). Permanent metering equipment has been installed at boro tie-in on Commerce Street and appear to be functioning in accordance with contract.

Pipeline construction Pipes are properly bedded and true to line and grade. Air test results are properly documented and up-to-date. Only two sections to date have failed and contractor has corrected both. No hydrostatic pressure tests have yet been run on force mains.

Paving and street repair See Comments in Section VII. Temporary restoration being maintained until permanent work can begin in April.

3. Project Sign Two, erected at field office.
4. Federal Wage Rates Posted Yes, at contractors' field trailers.
5. General Project Maintenance and Site Conditions General site conditions are satisfactory. Sites are policed daily and trenches closed up or barricaded. Water trucks are used for mud and dust control. Traffic on State Roads is protected by signing, pylons, and flagmen.

Section VI. Summary of Significant Construction or Management Deficiencies.

None.

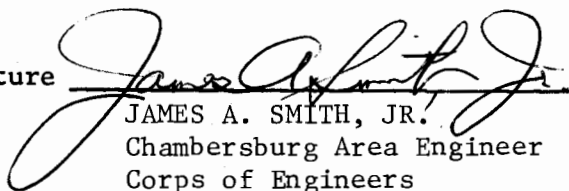
Section VII. Brief abstract of the interim inspection.

1. Inspection conducted at Engineer's Field Trailer and Main Office with representatives of the Consultant, Grantee, and PennDER in attendance.
2. The construction of mainline sewers is essentially completed and no problems are anticipated in completing all the work within the contract time. See Attachments No. 1, 2, and 3 for establishment of substantial completion on portions of sewers completed to date. Construction of pump stations is behind scheduled due to delays in the shipment of pre-cast, pre-packaged station components. These components began arriving around 1 March 1980 and work is now progressing on all five sites. The contractor has submitted a revised schedule, and no extension of time is anticipated as a result of these delays.
3. Twelve change orders are in various stages of processing, with ten approved by the Authority and five approved by Farmers Home Administration and submitted to EPA for review. Review time required by FmHA is till very long and improvements are not presently foreseen in this matter.
4. The Grant Payment Schedule, as revised on 21 May 1979, is accurate and properly reflects contractor's projected earnings.
5. Certified payrolls are on file and reviewed by the Engineer for the Grantee. A check of payrolls for the period 28 February 1980 thru 5 March 1980 revealed no discrepancies.
6. The project at the present time is still experiencing problems in two areas involving road restoration:

a. PennDOT has recently revised its requirements for the restoration of State Highways torn-up by the sewage construction. The new specifications call for full and partial overlays in excess of the normal trench width restoration anticipated (and approved by PennDOT) in the contract bid documents. To complete paving in

(CONTINUED)

Inspector's Signature


JAMES A. SMITH, JR.
Chambersburg Area Engineer
Corps of Engineers

Date 20 March 1980

Section VII. Brief abstract of the interim inspection (Continued).

conformance with these new regulations, the Engineer would have to issue change orders to cover the increased cost.

b. Township roads have also been severely damaged by sewer construction, including roads used as access by heavy construction equipment. Change orders would be required to cover full and partial overlays to restore these roads to original condition.

At the present time the Engineer, at the direction of the Authority, has completed a study of all State and Township Roads to determine restoration requirements and costs resulting from sewage construction. It is estimated that an additional \$80,000 would be required for restoration on State roads only.

Permanent road restoration has been officially delayed until the Spring of 1980. The results of the road survey will be used to initiate change orders to cover the restoration work and also apply for additional EPA Grant Funding. Requirements for additional funding were set forth in a memorandum from Mrs. Barbara D'Angelo, EPA, Region III, dated 15 October 1979 to the Engineer. PennDER has indicated that they will probably not participate in funding. Further action is pending review. Meanwhile, in an attempt to reduce the impact of added construction costs; the Consultant has requested a substitution of bituminous concrete base course for cement concrete base on some portions of state highways. (See Attachment No. 4). This request is awaiting PennDOT review and approval.

7. A problem has been encountered recently with contractors performing work without giving the Engineer advance notice. This has resulted in a non-verification of work by the inspection staff. Notices were sent by the Engineer and the problem was reported to have been resolved (Attachment No. 5).

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Section VII. Brief abstract of the interim inspection (Continued).

8. As a result of non-notification by the contractor on Contract No. 5, Pump Stations, the base slab for Pump Station No. 1 was not inspected during placement. In addition, it was determined that proper cold weather placement procedures had not been utilized and there was some question as to whether the slab was damaged during curing.

The contractor was subsequently issued requirements for proper cold weather placements, and the slab in question deemed unacceptable until all test results are received (Attachment No. 6).

Since the placement of the slab for Pump Station No. 1, no further problems have been encountered with cold weather procedures.

9. Overall resident inspection and project management at the time of this inspection are satisfactory.